Chapter 7

Programming with Recursion

After studying this chapter, you should be able to

* Discuss recursion as another form of repetition
* Do the following tasks, given a recursive routine:
* Determine whether the routine halts
* Determine the base cases
* Determine the general cases
* Determine what the routine does
* Determine whether the routine is correct and, if it is not, correct it
* Do the following tasks, given a simple recursive problem:
* Determine the base cases
* Determine the general cases
* Design and code the solution as a recursive void or value-returning function
* Verify a recursive routine, according to the Three-Question Method
* Decide whether a recursive solution is appropriate for a problem
* Compare and contrast dynamic storage allocation and static storage allocation in relation to using recursion
* Explain how recursion works internally by showing the contents of the run-time stack
* Replace a recursive solution with iteration, the use of a stack, or both
* Explain why recursion may or may not be a good choice to implement the solution of a problem